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EXAMINER	
DANG, IAN D	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/624,809	KARUMANCHI ET AL.	
	Examiner	Art Unit	
	Ian Dang	1647	

---The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35-50,54-56,58-68 and 70-81* is/are pending in the application.

4a) Of the above claim(s) *35-40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-50,54-56,58-68, and 70-81* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *35-50,54-56,58-68 and 70-81* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/30/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the amendment and response filed on 12/11/2006.

Status of Application, Amendments and/or Claims

The amendment of 11 December 2006 has been entered in full. Claims 1-34 and 51-53, 57, and 69 have been cancelled and claims 42-50 and 54-56, 58-68 have been amended. Claims 70-81 have been added.

Claims 35-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claims 41-50, 54-56, 58-68, and 70-81 are pending and under examination.

It is noted that Applicant's response and arguments filed on 12/11/2006 have overcome the issue of claims 41-68 under 112, First paragraph (Enablement) regarding non-human subject, such as cow, horse, sheep, pig, goat, dog or cat. Applicant's response and arguments filed on 12/11/2006 have also overcome the issue of claims 68 and 69 under 112, First paragraph (Enablement) regarding the diagnosis for HELLP, IUGR, or SGA.

Applicant's response and arguments filed on 12/11/2006 have overcome the issue of claims 41 and 45-68 under 112, First paragraph (Enablement) regarding measuring PlGF, sFlt-1, VEGF in cerebrospinal fluid.

35 USC § 112, Second paragraph

Applicant's response and arguments filed on 12/11/2006 have overcome the rejection of claims 45-47, 57-67 and 50-67 under 35 USC 112, Second paragraph. The rejection of claims

45-47, 57-67 and 50-67 under 112, Second paragraph, has been withdrawn.

35 USC § 102(b)

Applicant's response and arguments filed on 12/11/2006 have overcome the rejection of claims 45, 46, 49, 56-60 under 35 USC 102(b) (see page 27 of the response filed 12/11/2006). The rejection of claims 45, 46, 49, 56-60 under 35 USC 102(b) has been withdrawn.

Rejections Maintained

Claim Rejections - 35 USC § 112 (Written Description)

Claims 42-50, 54-56, 58-68 and the newly added claims 70-81 are rejected under § 112, First paragraph, as failing to comply with the written description requirement. The basis for this rejection is set forth claims 35-50, 54-56, 58-68 and the newly added claims 70-81 at page 2 of the previous office action of 30 June 2006.

The rejection is maintained. Applicant's response, arguments, and amendments filed on 12/11/2006 have been fully considered but they are not persuasive.

(i) At page 18 of the response, Applicants indicate that Applicants intend the limitation to capture VEGF fragments and isoforms as outlined in the specification. Applicants note that the limitation is intended to provide relevant identifying characteristics and note that the VEGF detected is still the free form of VEGF but that the free VEGF has the ability to bind to sFlt-1. Furthermore, as noted during the interview, one skilled in the art at the time the invention was filed would clearly understand that numerous VEGF polypeptides can bind to sFlt-1 and would

know how to assay for VEGF polypeptides that can bind to sFlt-1 using techniques known in the art.

Applicant's arguments have been fully considered but are not found persuasive. While Applicant intends to capture VEGF fragments and isoforms as described in the specification of at page 4, lines 22-25, the written description requirement has not been met. Although Applicants have described the functions for the fragments or isoforms of VEGF as binding to sFtl-1, Applicants has not provided adequate description for the structures that are able to perform such function. For instance, Applicants have not identified the important amino acid residues for binding of VEGF that are required for binding to sFlt-1. In addition, the different isoforms and fragments of VEGF may not have the amino acid residues required to bind to sFlt-1. Thus Applicant has not satisfied the written description for VEGF since Applicant has not provided a correlation between the structure of VEGF and its function of binding to sFlt-1. As stated by applicant at page 18, The written description requirement may be met by (MPEP § 2163) "a disclosure of sufficiently detailed, relevant identifying characteristics which provide evidence that Applicant was in possession of the claimed invention, i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics."

(ii) With regard to the Examiner's assertion that there is some variability in the degree of potency in the VEGF family members with respect to the induction of proliferation of endothelial cells, Applicants submit that, as described during the interview, it is the ability of the VEGF to bind to sFlt-1 that is the critical characteristic of the VEGF as claimed in the methods of the invention. The present invention is based on Applicants' discovery that levels of sFlt-1, a

receptor for VEGF and PlGF, are increased in subjects with pre-eclampsia or eclampsia. When the levels of sFlt-1 are increased, sFlt-1 can complex to PlGF and VEGF, thereby reducing the levels of free PlGF and free VEGF (see, for example page 3, lines 9-17). The ability of VEGF to bind to sFlt-1 is a critical characteristic of VEGF family members useful in the claimed methods and this activity is described throughout the specification.

Applicant's arguments have been fully considered but are not found persuasive. While Applicants have identified that VEGF and PlGF are required to bind to sFlt-1 as a critical function of these 2 growth factors, Applicants have not provided structural characteristics supporting this function. Applicants have provided examples for VEGF121 and VEGF165 of free VEGF binding to sFlt-1. However, the functions of these 2 isoforms of VEGF may not be representative for all the members of the VEGF family. In addition, PlGF disclosed in the specification may not have characteristics with the other members of the PlGF family. Individual members of the VEGF and PlGF family have different amino acid sequences correlating to different biological activities. As mentioned supra, Applicants have not provided a correlation between the structures of VEGF or PlGF and their abilities to bind to sFlt-1.

Claim Rejections - 35 USC § 112 (Enablement)

Claims 42-50, 54-56, 58-68, and the newly added claims 70-81 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for detecting sFlt-1, VEGF, or PlGF in urine and serum of a pregnant human subject, does not reasonably provide enablement for detecting sFlt-1 and all possible VEGF and PlGF polypeptides in amniotic fluid, endothelial cells, leukocytes, monocytes, and cells derived from the placenta. The specification

does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention commensurate in scope with these claims.

The basis for this rejection is set forth for claim 66 and the newly added claim 81 at page 3 of the previous action of 30 June 2006.The rejection of claims 66 and the newly added claim 81 is maintained. Applicant's response arguments, and amendments of claims filed on 12/11/2006 have been fully considered but they are not persuasive.

At page 21 of the response, Applicant argues that amniotic fluid is obtained through amniocentesis, a procedure that is standard in the art and is routinely performed by the clinician. The techniques for the detection of sFlt- 1, free PlGF, and free VEGF described in the specification for bodily fluids, such as serum or urine, can be easily adapted for the detection of these polypeptides in amniotic fluid. In addition, Applicant alleges it is well known in the art that sFlt-1, PlGF, and VEGF could be detected in amniotic fluid by providing support for the statement with Exhibits A and B (see page 22 page of the response).

Applicant's argument and the declaration under 37 CFR 1.132 filed 12/11/2006 have been fully considered but are insufficient to overcome the rejection of the claims based upon35 U.S.C. § 112, first paragraph as set forth in the last Office action because the evidence is not found persuasive. Although the amniotic fluid obtained through amniocentesis is a standard procedure in the art and is routinely performed by the clinician, applicants are not enabled for a diagnosis of pre-eclampsia or eclampsia in a pregnant subject, since the specification does not provide any guidance for such method with any growth factors.

The amniotic fluid obtained through amniocentesis is performed to study the fluid surround the fetus. Cells shed by the developing baby present in the fluid can provide information regarding the certain types of birth defects, such as Down syndrome, and the sex of

the baby. However, the Exhibits A and B are silent regarding the use of amniotic fluid as an indicator for the health of the mother regarding pre-eclampsia or eclampsia. Although the techniques for the detection of sFlt- 1, free PlGF, and free VEGF described in the specification for bodily fluids, such as serum or urine, can be easily adapted for the detection of these polypeptides in amniotic fluid, Applicant are not enabled for the diagnosis of pre-eclampsia or eclampsia by measuring levels of growth factors, since they may not be similar to those found in the serum or in the urine.

At page 24 of the response, Applicants have provided a declaration of Dr. Karumanchi, a variety of cell types, including those listed in claim 66, have been shown in the art to express sFlt-1, VEGF, and PlGF. In addition, the Declaration indicates that the cells recited in claim 66 are readily obtained using techniques known to the skilled artisan. Moreover, Applicants provide a working example of the detection and comparison of the levels of sFlt-1 in monocytes from a pre-eclamptic patient and a normotensive patient (see Exhibit E).
Applicant's arguments and the declaration under 37 CFR 1.132 filed 12/11/2006 have been fully considered but are insufficient to overcome the rejection of the claims based upon 35 U.S.C. § 112, first paragraph as set forth in the last Office action because the evidence is not found persuasive.

While Applicants can isolate monocytes for pre-eclamptic patients as disclosed in Exhibit E, Applicants have not provided evidence that levels of sFlt-1 obtained from monocytes or other tissues from patients can be indicative of pre-eclampsia or eclampsia. From the specification of the instant application, levels of sFt-1 from serum are reliable indicator of the disorder, but the correlation between levels of sFlt-1 from monocytes, other cells or other tissues with those of sFlt-1 in serum have not been presented in the Declaration or in Exhibit E.

In addition, in a recent publication the authors acknowledge that sFlt-1 is not the main source for the soluble receptor. For instance, Maynard et al. (2005) recite although sFlt-1 is made in small amounts by other tissues (endothelial cells and monocytes), the placenta seems to be the major source of circulating sFlt1 during pregnancy, as evidenced by the dramatic fall in circulating concentrations of sFlt1 after delivery (page 4R, left column, end of 3rd paragraph).

Finally, the declaration, Exhibit E, or the art, does not provide any evidence that any cells or any tissue secreting sFlt-1 can contribute to the diagnosis of pre-eclampsia or eclampsia.

Thus, without sufficient disclosure in the specification, it would require undue experimentation for one of skill in the art to be able to diagnose pre-eclampsia or eclampsia with sFlt-1 levels measured from a cell or a tissue, including monocytes, endothelial cells, and leukocytes.

Isoforms and fragments of PlGF

Applicants have not provided guidance regarding the diagnosis of pre-eclampsia or eclampsia with other isoforms fragments of PlGF are biologically equivalent to the PlGF with accession number P49763. While Applicants are enabled for PlGF binding to sFlt-1 for the diagnosis of pre-eclampsia or eclampsia, Applicants are not enabled for detection of all different isoforms and fragments of PlGF. Not every PlGF isoform or fragment or variant may have similar diagnostic benefits, since they have different structure and biological functions from. Applicants have not provided a correlation between the structure of PlGF with and its ability to bind to sFlt-1.

In addition, several members make up the PlGF family. The isoform of PlGF used in this application may not have the characteristics of other members of PlGF, since they have

different sequences and biological activities. For instance, Torry et al. (2003) teach that PlGF exhibits four different isoforms as a result of alternative splicing of a single PlGF primary transcript. PlGF-1 consists of six exxons, whereas PlGF-2 contains the same six exons plus an additional exon (exon 6) that encodes a heparin-binding domain. PlGF-3 is comprised of the same exons as PlGF1 plus additional 216 nucleotides encoding a 72-amino acid sequence insert between exons 3 and 5. Absence of the heparin-binding domain cause PlGF-1 and PlGF-3 to exist primarily as diffusible forms, whereas inclusion of the heparin binding domain in PlGF-2 and PlGF-4 keeps them mainly membrane associated forms (page 179, left column, 2nd paragraph).

Thus applicants are not enabled for all isoforms and fragments of PlGF for the diagnosis of pre-eclampsia or eclampsia.

Isoforms and fragments of VEGF

Although the specification provides support for purified forms of VEGF, this growth factor has multiple isoforms with different structure and functions. For instance, Ferrara et al. (1999) teach that native VEGF is a basic, heparin-binding, homodimeric glycoprotein of 45,000Da. These properties correspond to those of VEGF165, the major isoform. VEGF121 is a freely diffusible protein; VEGF165 is also secreted, although significant fraction remains bound to cell surface and the extracellular matrix (page 796, left column last paragraph). Moreover, compared with VEGF165, VEGF121 or VEGF110 demonstrate a 50- to 100-fold reduced potency when tested in endothelial mitogenic assay (page 796, right column, middle of paragraph). Thus the different structures for the VEGF isoforms lead to distinct biological functions. Consequently, it would require undue experimentation for the skilled artisan to determine all possible growth factor or fragment formulations binding to sFlt-1 for therapeutic

use for pre-eclampsia or pre-eclampsia, since the correlation between the structure and function of the growth factors binding to sFlt-1 has not been determined.

It would require undue experimentation by one of skill in the art to be able to practice the invention commensurate in scope with the claims, because the claims are broadly drawn to a method of treatment of pre-eclampsia or eclampsia administering (1) any growth factor or fragment thereof or (2) any VEGF polypeptide.

Human pregnant subject

Claims 41, 45-50, 54-56, 62-68, 70-81 are additionally rejected under 35 U.S.C. 112, first paragraph, because the specification does not reasonably provide enablement for a method of diagnosing any human subject as having, or having the propensity to develop pre-eclampsia or eclampsia (other than a pregnant subject).

While the specification provides teachings and examples for the diagnosis or detection of pre-eclampsia or eclampsia in pregnant human subjects, the specification does not provide any guidance or examples for the diagnosis or detection of pre-eclampsia or eclampsia human subjects who are not pregnant.

In addition, the basis for the diagnosis of pre-eclampsia or eclampsia is to indirectly measure levels of sFlt-1. This soluble factor is mostly secreted by the placenta of human subject. As mentioned previously, in a recent publication the authors acknowledge that sFlt-1 is not the main source for the soluble receptor. For instance, Maynard et al. (2005) recite although sFlt-1 is made in small amounts by other tissues (endothelial cells and monocytes), the placenta seems to be the major source of circulating sFlt1 during pregnancy, as evidenced by the dramatic fall in circulating concentrations of sFlt1 after delivery (page 4R, left column, end of 3rd

paragraph). Thus, method of diagnosis claimed in the instant application is only enabled for human pregnant subject.

Without sufficient disclosure in the specification, it would require undue experimentation for one of skill in the art to diagnose or detect of pre-eclampsia or eclampsia human subjects who are not pregnant. In addition, it would require undue experimentation to practice the invention commensurate in scope with the claims because, the claims are broadly drawn to a method of diagnosis or detection of pre-eclampsia or eclampsia in any human subjects.

Claim Rejections - 35 USC § 102(b)

35 USC § 102

Claims 43 and 62-65 are rejected under 35 USC 102(b) as a being anticipated by Charnock-Jones et al., (WO 98/28006). The basis of this rejection is set forth for claims 43 and 62-65 at page 10 of the previous Office action of 30 June 2006.

The rejection of claims 43 and 62-65 under 35 USC 102(b) is maintained. Applicant's response and arguments filed on 12/11/2006 have been fully considered but they are not persuasive.

(i) At page 29 of the response, Applicants argue that Charnock-Jones does not expressly describe the detection of free PlGF levels, as required by claim 43, and that the PlGF detected by Charnock-Jones would not necessarily be free PlGF and therefore does not inherently possess the same function and attributes as the free PlGF of the present claims. In addition, Applicants argue that unless one was using a method of detection that was specific to the free

form, one would not be unable to determine if the PlGF detected was free or bound to the sFlt-1 or Flt-1.

Finally, Applicants argue that the detection methods used to detect PlGF in the present invention specifically detected free PlGF. Applicants indicate that results in Exhibit F indicate that the level of PlGF detected by ELISA significantly decreases in the presence of increasing levels of recombinant sFlt-1. The interference of sFlt-1 with PlGF measurement confirms that the PlGF detected is free PlGF and the decrease in the levels of PlGF detected in the presence of increasing levels of recombinant sFlt-1 is due to the fact that as SFlt-1 is added, more of the PLGF binds to SFlt-1 and is therefore not detected by the ELISA that is specific for only the free form of PlGF.

Applicant's arguments have been fully considered but are not found persuasive. Charnock-Jones et al. recite that the samples were analyzed in duplicate on a R&D ELISA for PlGF and the assay measured down to 7 pg/ml of PlGF (page 33, 2nd paragraph). Similar to Charnock-Jones et al., Applicants disclose decreased levels of PlGF in women with pre-eclampsia or eclampsia as recited in Examples 7-12 (pages 45-79) in Tables 2-7. These PlGF levels were obtained from the clinical trial disclosed by Levine et al. (2005, cited on page 1 of the IDS mailed March 29, 2006), Dr. Levine teach that free PlGF levels were measured by with the use of commercial kits provided by R&D with the minimum detectable doses in the assays at 7pg/ml (page 79, middle column, last paragraph titled procedures). Since the method for detecting free PlGF by Applicants is the same as the one used by Charnock-Jones, the PlGF detected by Charnock-Jones et al. is inherently free.

In addition, although the Examiner agrees that Applicant's model with respect to sFlt-1 is different from the one disclosed by Charnock-Jones, the claims recited in the instant application are still anticipated by Charnock-Jones et al. The claims of this instant application do not recite

any increases of sFlt-1 as an indicator for the diagnosis of pre-eclampsia or eclampsia but rather recite that levels of free PlGF are an indicator for the disease. Claim 43 recites that the level of free PlGF is less than 400pg/ml and Charnock-Jones disclose that in pre-eclamptic pregnant women the average concentration of PlGF is much lower, about 150-185 pg/ml (page 12, 2nd paragraph). Decreases levels of PlGF are indicative of pre-eclampsia and eclampsia and not levels of sFlt-1.

New Ground of Rejection

Rejection under Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 44, 45-48, 50, 56, 58, 62, 63, 64, 65, 66, 70-73, 75, and 81 are provisionally rejected under obviousness type double patenting over claims 1, 9, 12, 13, 44, 47, 48, and 54-59 of co-pending U.S. Patent Application No. 11/019,559.

Both sets of claims are directed to a method of diagnosis a human pregnant subject as having, or having a propensity to develop, pre-eclampsia or eclampsia, comprising measuring the level of free PlGF polypeptide and free VEGF polypeptide, which both have the ability of bind to sFlt-1, wherein an increase in the level of sFlt-1 or a decrease in the level of free VEGF or free PlGF polypeptide relative to said reference diagnoses said subject as having, or having a propensity to develop pre-eclampsia.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

No claim is allowed.

The art made of record and not relied upon is considered pertinent to applicant's disclosure:

Bushimschi et al. (Pub. No. US 2006/0183175 A1, cited in the IDS mailed 10/30/2006) teach a method related to the detection and monitoring of the levels of angiogenic factor, specifically VEGF, PlGF, and sFlt-1, in urine samples obtained from pregnant women and the effects of such levels on the risk of developing complications of pregnancy, including hypertensive disorders, such as pre-eclampsia.

Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian Dang whose telephone number is (571) 272-5014. The examiner can normally be reached on Monday-Friday from 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol can be reached on (571) 272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ian Dang
Patent Examiner
Art Unit 1647
April 27, 2007

Bridget E. Bunner

BRIDGET BUNNER
PATENT EXAMINER